**README: Information regarding R code used for ‘How do chat apps support the use of farming videos in agricultural extension: a case study from Bihar, India’.**

**01 System requirements / installation requirements**

Running the code requires the R software and all necessary R packages, which are specified in the code using the ‘library’ function. R can be installed from the CRAN website (<https://cran.r-project.org/>), with a standard installation time of 5-10 minutes. Non-standard hardware is not required. The code was tested using R version 4.0.3 (2020-10-10).

**02 Instructions for use / demonstration**

* Step 1) Install all software and R packages listed above.
* Step 2) Save the dataset entitled ‘NUE\_survey\_dataset.csv’ in the desired working directory, i.e., the file in which you would like to save the code inputs and outputs.
* Step 3) Input this working directory into the R code, every time [insert working directory] is stated.
* Step 4) Run the code from start to finish. This will take roughly 12 hours on a standard computer, not including the time required to install R and necessary R packages (explained above). The code is not modular, meaning that running some chunks of code depend on preceding chunks of code being run beforehand.

**03 Expected output**

The code will generate and save all tables and figures used in the main manuscript in the working directory you stipulated in ‘Step 3’ (explained above). In addition, the code will generate all data-based tables and figures used in the supplementary information. The code is annotated to help you find any data-based tables or figures of interest used in the main manuscript and supplementary information. Each time you run the code, the figures and tables based on Shapley values produce very subtly different results. This is because the ‘fastshap’ R package approximates Shapley values, given the extreme computational expense of calculating exact Shapley values (Štrumbelj and Kononenko, 2014). However, this output variation is very minor, and does not impact the study conclusions.

**04 License for use**

GNU General Public License, version 3.0 (GPL-3.0)

**05 References**

Štrumbelj, E. and Kononenko, I., 2014. Explaining prediction models and individual predictions with feature contributions. *Knowledge and information systems*, *41*, pp.647-665